

CLAIMS

1. a burner apparatus comprising:
  - a housing defining a chamber and having an air inlet;
  - a peripherally extending baffle disposed in said housing, a first peripherally
  - 5 extending flow passage being formed between said housing and said baffle, said first flow passage being in open communication with said air inlet;
  - a peripherally extending combustion liner disposed inwardly of said baffle,
  - a second peripherally extending flow passage being formed between said liner and said baffle, said second flow passage being in open communication with said first passage;
  - 10 a reversing diverter disposed in said chamber, said diverter being positioned to direct air flowing from said first flow passage into said second flow passage;
  - a burner assembly mounting plate disposed in said liner, said burner mounting plate having a first side and a second side, said mounting plate and said liner at least partially defining a burner barrel on the first side of said mounting plate;
  - 15 at least one burner assembly mounted on said burner mounting plate; and
  - a plenum on the second side of said mounting plate, and being in open communication with said second flow passage.
2. The burner apparatus of Claim 1 wherein said baffle has at least one baffle perforation through said baffle providing open communication between said first flow
- 20 passage and said second flow passage.

3. The burner apparatus of Claim 2 wherein there are a plurality of said baffle perforations.

4. The burner apparatus of Claim 1 wherein there is at least one liner perforation through said liner providing open communication between said second flow passage and said  
5 burner barrel.

5. The burner apparatus of Claim 4 wherein there are a plurality of said liner perforations.

6. The burner apparatus of Claim 1 wherein there are a plurality of peripherally disposed louvers providing open communication between said first flow passage and said  
10 combustion barrel, said louvers being disposed distal said mounting plate.

7. The burner apparatus of Claim 1 wherein there are a plurality of burner assemblies mounted on said burner mounting plate.

8. The burner apparatus of Claim 7 wherein at least one of said assemblies is generally centrally located on said mounting plate and the other of said assemblies are  
15 mounted in surrounding relationship thereto, and there is an igniter for igniting combustible fuel passing through said nozzle of at least one of said burner assemblies.

9. The burner apparatus of Claim 1 wherein said mounting plate has an opening providing open communication between said plenum and said burner barrel and said burner assembly comprises:

a burner tube in surrounding relationship to said opening; and

5 a nozzle disposed in said burner tube for introducing a combustible fuel into said burner barrel.

10. The burner apparatus of Claim 9 wherein said burner assembly further includes a burner vane disposed in said burner tube, said burner vane providing a series of radially extending, circumferentially spaced slots.

10 11. The burner apparatus of Claim 10 wherein said slots are configured to impart a rotational pattern to air passing through said burner vane.

12. The burner apparatus of Claim 10 wherein said nozzle is disposed centrally of said burner vane.

13. The burner apparatus of Claim 9 wherein there is an igniter for igniting a  
15 combustible mixture passing through said nozzle into said burner barrel.

14. The burner apparatus of Claim 8 wherein said mounting plate has a plurality of openings providing open communication between said plenum and said burner barrel and each of said burner assemblies comprises:

- a burner assembly tube in surrounding relationship to said opening; and
- 5 a nozzle disposed in said burner tube for introducing a combustible fuel into said burner barrel.

15. The burner apparatus of Claim 14 wherein each of said burner assemblies further includes a burner assembly vane disposed in said burner assembly tube, said burner vane providing a series of radially extending, circumferentially spaced slots.

- 10 16. The burner apparatus of Claim 15 wherein said slots are configured to impart a rotational pattern to air passing through said burner vane.

17. The burner apparatus of Claim 16 wherein said nozzle is disposed centrally in said burner vane.

- 18. The burner apparatus of Claim 8 wherein there is an igniter for igniting a  
15 combustible mixture passing through said nozzle in said burner assembly centrally located on said mounting plate.

19. The burner apparatus of any of Claim 8 or 18 wherein selected arrays of burner assemblies can be ignited.

20. A multiple burner assembly apparatus comprising:

a burner assembly mounting plate, said burner assembly mounting plate having a generally centrally located opening and a plurality of additional openings laterally spaced from said centrally located opening and generally equally spaced from said centrally located opening and each other;

a burner assembly disposed in each of said openings, each of said burner assemblies comprising:

a burner assembly tube in surrounding relationship to said opening;

a nozzle disposed in said burner assembly tube for introducing a combustible fuel and

a burner assembly vane disposed in said burner assembly tube, said vane including a series of radially extending, circumferentially spaced slots.

21. The multiple burner assembly apparatus of Claim 20 wherein said slots are configured to impart a rotational pattern to air passing through said burner assembly vane.

22. The multiple burner assembly apparatus of Claim 20 wherein said nozzle is disposed centrally in said burner assembly vane.

23. The multiple burner assembly apparatus of Claim 20 wherein there is an igniter for igniting a combustible mixture passing through said nozzle in said burner assembly generally centrally located on said mounting plate.

24. The multiple burner assembly apparatus of Claim 1 wherein said additional openings are arrayed in a generally circular pattern around said centrally located opening.

25. The multiple burner assembly apparatus of Claim 24 wherein there are eight of said additional openings.